



How It Works: ROW Topics

November 2016

Agenda



Registration Data Access Protocol



Registry-Registrar Functions





Replacing WHOIS Protocol: Timeline

- **19 September 2011:** SSAC's SAC 051: The ICANN community should evaluate and adopt a replacement domain name registration data access protocol
- **28 October 2011:** Board resolution adopts SAC 051
- **4 June 2012:** Roadmap to implement SAC 051
- **2012:** RDAP community development within IETF WG begins
- Contractual provisions in: .biz, .cat, .com, .coop, .info, .jobs, .name,
 - org, .pro, .travel, .xxx, 2012 Registry Agreement (new gTLDs) and 2013 Registrar Accreditation Agreement
- March 2015: RDAP IETF RFCs published
- **26 July 2016:** RDAP Profile version 1.0 published



Why Should WHOIS (port-43) Be Replaced?

• Non-standardized format:

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Why Should WHOIS (port-43) Be Replaced?

• Not internationalized:

Domain Information: [?h???C????] [?0?^?#?] [Registrant] [Name Server] ??ABc?@?l? [Signing Key] [????N????] [?[??????] [???] [?ŏI?X?V] Contact Information: [???J?A?????] [Name] [Email] [Web Page] [?X?c?] [?Z??]



Why Should WHOIS (port-43) Be Replaced?

- Unauthenticated
 - Unable to differentiate between users
- Unable to provide differentiated service
 - The same fields are provided to all users
- Insecure
 - No support for an encrypted response
- No bootstrapping mechanism
 - No standardized way of knowing where to query
- Lack of standardized redirection/reference
 - Different workarounds implemented by TLDs



The Registration Data Access Protocol (RDAP) is a protocol designed to replace the existing WHOIS protocol and provides the following benefits:

- Standardized query, response and error messages
- Secure access to data (i.e., over HTTPS)
- Extensibility (e.g., easy to add output elements)



RDAP Features (2/2)

- Bootstrapping mechanism to easily find the authoritative server for a given query
- Standardized redirection/reference mechanism (e.g., from a registry to a registrar)
- Builds on top of the well-known web protocol, HTTP
- Internationalization support for registration data
- Optionally enables differentiated access (e.g., limited access for anonymous users, full access for authenticated users)



RDAP Examples

- Queries:
 - <u>https://example.com/rdap/domain/blah.example.com</u>
 - <u>https://example.com/rdap/domains?name=example*.com</u>
 - <u>https://example.com/rdap/nameserver/ns1.example.co</u>
- Responses (two pages long for one response):



Internationalization

- Internationalized domain names supported in both the question and the answer
- Internationalized contact information is supported
- Contact information supports language tags in order to define the language / script of the data
- Replies are JSON formatted, which supports UTF-8
- The transport protocol is HTTP, which supports UTF-8



Bootstrapping

- In the case of new gTLDs, whois.nic.<TLD> is the standard name to find the WHOIS/web-Whois server
- In the case of RDAP, the protocol defines standard bootstrap mechanism that allows a client to find the authoritative server for a particular <TLD>
- RDAP specification explains how to form direct queries and basic search queries
- <u>http://data.iana.org/rdap/dns.json</u>



Differentiated Access

- Differentiated access refers to the functionality of showing different subsets of RDDS fields based on who is asking (e.g., limited access for anonymous users, full access for authenticated users)
- As of today, only three gTLDs (.cat, .name, .tel) have a contract provision allowing RDDS with differentiated access
- There is a Policy Development Process (Registration Data Services PDP) in the Generic Names Supporting Organization that has differentiated access in scope





Thin Data in RDAP

- In a thin domain registry the domain contact information is held by the registrar. The registry RDDS only holds a referral to the registrar, the registration, expiry, creation, update date, name servers and domain status.
- A thick domain registry holds all of the contact information needed for the domain names.
- With RDAP, a Registry can point the end-user to the Registrar's RDAP in order to obtain authoritative information maintained by the Registrar.



RDAP in gTLDs



Transition





Engage with ICANN



Thank You and Questions

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